

CLAIMS

1. A device for testing a data carrying service operating over a telecommunications line, the device comprising:
- 5 a plurality of test circuits, each test circuit arranged to determine and test one or more characteristics of a data carrying service and providing means to emulate a termination of said telecommunication line;
- processing means operable to control the operation of each of said plurality of test circuits; and
- 10 connection means arranged to connect said telecommunication line to one or more of said plurality of test circuits,
- wherein said test circuits are arranged to enable said data carrying service to remain connected to said connection means during all of the testing operations provided by said one or more of the test circuits.
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2. A device as claimed in claim 1, wherein
- said connection means connects said data carrying service telecommunications line to one test circuit at a time;
- said processing means is operable to control the operation of a plurality of said
- 20 test circuits in a predetermined sequence; and
- said data carrying service remains connected to said connection means as each of said plurality of test circuits is operable in said predetermined sequence.
3. A device as claimed in claim 1, further comprising
- 25 means for said connection means to provide input to a plurality of test circuits at a time, and wherein
- said processing means is operable to control the parallel operation of said plurality of said test circuits; and
- said data carrying service remains connected to said connection means as each
- 30 of said plurality of test circuits is operable.
4. A device according to any one preceding claim, wherein
- said processing means controls the operation of said test circuits to determine the identity of the data carrying service.

5. A device according to claim 4, further comprising a display means arranged to provide an indication of the identity of the data carrying service determined by said processing means and one or more of said test circuits to an operator of the device.
- 5 6. A device according to any one preceding claim, wherein said connection means is arranged to both send and receive data over said line.
7. A device according to any preceding claim, wherein said connection means is connected to said means to emulate a termination point of said telecommunications line.
- 10 8. A device according to claim 7, wherein said connection means comprises a pair of ports, each port arranged to connect to said telecommunications line to a chip-set providing means to emulate a termination point of said telecommunications line, the test circuit being arranged to enable the device in use to act as a passive link within the data
- 15 carrying service.
9. A device according to claim 7, wherein said connection means comprises a pair of ports, each port arranged to connect to said telecommunications line to a chip-set providing means to emulate a termination point of said telecommunications line, the test
- 20 circuit being arranged to perform throughput testing of said data carrying service over said line.
10. A device according to any preceding claim, wherein said means to emulate a termination of said telecommunications line comprises a modem.
- 25 11. A device according to any preceding claim, wherein said termination of said telecommunications line comprises termination at a transceiver unit central office.
13. A device according to any preceding claim, wherein said termination of said
- 30 telecommunications line comprises termination at a transceiver unit remote terminal.
14. A device for identifying and testing data carrying services operating over a telecommunications line, the device comprising:
- 35 a port for connection to the line so as to send and receive data;
- a processing unit; and

test circuit means capable of identifying and testing in co-operation with the processing unit a plurality of different data carrying services using the data sent and received via said input port.

- 5 15. A device according to claim 14, in which the plurality of different data carrying services comprise any combination of DSL (Digital Subscriber Line), ISDN (Integrated Services Digital Network), and POTS (Plain Old Telephony Service) services.
- 10 16. A device according to claim 14 or 15,
in which the test circuit means can operate as a plurality of different modem types under control of the processing unit.
- 15 17. A device according to any of claims 14 to 16,
in which the test circuit means comprises a plurality of modem chip sets including two ADSL (Asymmetric Digital Subscriber Line) chip sets and two ShDSL (Single pair High bit rate Digital Subscriber Line) chip sets.
- 20 18. A device according to any of claims 14 to 17,
in which the test circuit means comprises a programmable modem chip set which can be programmed under control of the processing unit to operate as a plurality of different modem types.
- 25 19. A device according to any of claims 14 to 18,
in which the processing unit is arranged to control the order of identifying and testing the plurality of data carrying services in accordance with a predefined script.
- 30 20. A device for testing a data carrying service operating over a telecommunications line between a first and second terminal, the device comprising:
a first port for connecting to the first terminal on the line so as to send and receive data from the first terminal;
a second port for connecting to the second terminal on the line so as to send and receive data from the second terminal;
a processing unit; and
- 35 test circuit means capable of testing in co-operation with the processing unit at least one data carrying service using the data sent and received via said ports, the test

circuit means comprising two chip sets interconnected such that data received via one of said ports may be output substantially unchanged via the other of said ports.

21. A device according to claim 20:
5 wherein testing a data carrying service comprises monitoring the data received via said ports.
22. A device according to claim 20 or 21:
10 wherein testing a data carrying service comprises introducing errors into the data received via one of said ports before outputting it via the other of said ports.
23. A device for testing a data carrying service operating over a telecommunications line, the device comprising:
15 a port for connection to the line so as to send and receive data;
a line attenuation emulator for modifying the data in a manner to emulate an extended length of line;
a processing unit; and
test circuit means for testing in co-operation with the processing unit a data carrying service using the data sent and received via said input port.
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24. A device according to claim 23, in which the attenuation emulator is provided by an interface unit comprising attenuation circuitry, the interface unit connected between the port and the test circuit means.
25. A method for testing a data carrying service operating over a telecommunications line using a device according to any preceding claim, the method comprising:
25 connecting said telecommunication line to connection means provided by said device and arranged to connect said telecommunication line to one or more of a plurality of test circuits provided by said device, each test circuit arranged to determine one or more characteristics of a data carrying service and providing means to emulate a termination of said telecommunication line;
30 determining, using processing means operable to control the operation of each of said plurality of test circuits, the identity of the data carrying service,
wherein said data carrying service remains connected to one or more of the test circuits via said connection means during the independent operation of each test circuit.
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26. A method as claimed in claim 25, wherein said device has display means, the method further comprising the step of:

displaying the identity of the data carrying service determined by said device on said display means.

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27. A device for testing a data carrying service operating over a telecommunications line, substantially as hereinbefore described with reference to and/or substantially as illustrated in any one or any combination of the accompanying drawings.

10 28. A method for testing a data carrying service operating over a telecommunications line, substantially as hereinbefore described with reference to and/or substantially as illustrated in any one or any combination of the accompanying drawings.